EPA Water Infrastructure Improvements for the Nation (WIIN) grants

Minnesota Lead Testing in Drinking Water at Schools and Child Care Centers

WORK PLAN for FFY20

Project Period

October 2020 – September 2022

Grant Objective

Assist with voluntary sampling for lead in drinking water at local education agencies and childcare programs to help reduce lead exposure in vulnerable children. Up to 4,586 samples in total could be collected using the grant funds from FFY20. To manage facilities materials inventory, results, and improve communication of results and technical assistance data management software and support from 120WaterAudit will be purchased.

Summary Statement

The proposed Minnesota Lead Testing in Schools and Child Care Centers work plan reflects the commitment of public health, education, and human services, as well as those directly responsible for operating public local education facility and child care drinking water systems, to reduce the chance that children are exposed to the health hazards of lead through drinking water. Established Minnesota guidance will work with the EPA "3 Ts" approach to ensure that efforts follow best practices and stakeholders understand public health risks.

While the Minnesota Department of Health (MDH) is responsible for the overall implementation of the program, critical assistance will be provided by the Minnesota Department of Education (MDE) and the Minnesota Department of Human Services (DHS). MDE will be the primary point of contact for local education agencies, while DHS will be the primary point of contact for child care facilities. The MDH Public Health Lab (PHL) will manage preparing and analyzing samples.

We will give priority to areas that serve low-income residents, areas with existing elevated lead exposure, elementary and child care facilities that primarily care for children 6 and under, and areas with a high percentage of buildings built before 1986. Basic information will be solicited so that sampling supplies can be sent to them directly from the PHL. Results will be sent back to participants for distribution to the public, parents, teachers, and the larger community.

The MLTSCCDW will emphasize **training** through a variety of channels and direct technical assistance from experts in the field, **testing** through the provision of sample kits, instructions, and return-mail packaging to participants, **taking action** primarily through established programs/resources, and **communicating** across agencies and participants to coordinate work and between facilities/populations with similar concerns.

Raising awareness of lead exposure routes associated with drinking water will help high-risk populations understand and implement hazard reduction strategies. Ultimately, MLTSCCDW will help promote the MDH vision of safe and sufficient drinking water for everyone, everywhere in Minnesota.

Scope of Work

A. State Goals and Priorities

The Minnesota Department of Health (MDH) proposes to use funding appropriated under section 1464(d) of the Safe Drinking Water Act, amended by the Water Infrastructure Improvement Act (WIIN) section 2107 and the America's Water Infrastructure Act (AWIA) section 2006, to support Minnesota education agencies and child care facilities in sampling drinking water for lead to help reduce lead exposure in vulnerable children.

Minnesota Background

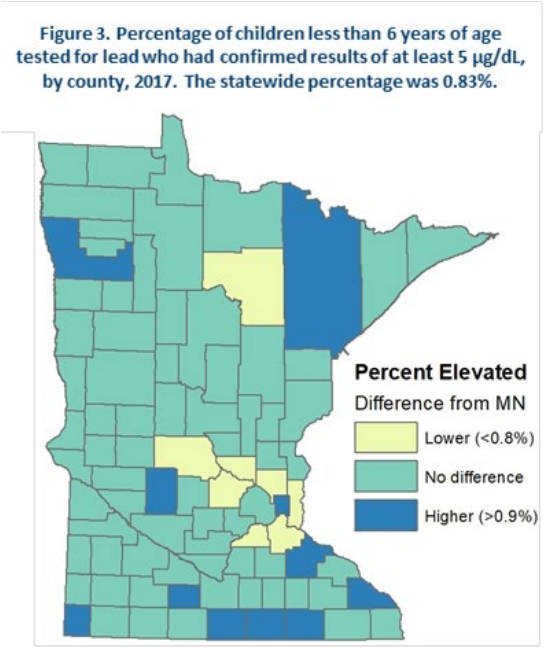


Figure 3. Percentage of children less than 6 years of age tested for lead who had confirmed results of at least 5 µg/dL, by county, 2017. The statewide percentage was 0.83%.

- In Minnesota, there are 655,713 families with 1,256,183 children.
- MDH has extensive lead poisoning prevention capacity: Drinking Water Protection, Childhood Lead Poisoning Prevention, Public Health Lab, relationships with local public health, and an agency-wide health equity emphasis. The Public Health Lab has capacity to send sample kits, receive samples, analyze samples, and report results for lead in drinking water.
- MDH has primacy to enforce the Safe Drinking Water Act via Minnesota Statutes (MS) 144.383 and Minnesota Rules (MR) 4720.
- MS 144.9504 mandates environmental interventions for confirmed blood lead levels of 15 µg/dL or greater in children less than six years old and authorizes environmental interventions for levels between 5 and 14 µg/dL as resources permit. For levels of 5 µg/dL or greater, existing state case management guidelines recommend that local public health nurses work with families to decrease lead levels.
- MDH monitors all blood lead samples done in the state. Counties with higher risk of lead poisoning (Figure 3 at right) include: St. Louis, Polk, Kandiohi, Ramsey, Goodhue, Winona, Mower, Freeborn, Fairbault, Watonwan, and Rock.
- Minnesota Department of Education (MDE) coordinates with local education agencies, including building maintenance, health and safety, and parent communication. There are 336 local education districts in Minnesota containing just under 2,500 local education facility buildings, which serve 845,404 students.
- Local education agencies are required to have a plan for "accurately and effectively testing for lead in public local education buildings" via MS 121A.335 and start sampling by July 2018.
- Minnesota Department of Human Services (DHS) coordinates with daycare facilities, including licensing and ensuring that providers meet minimum health and safety standards. The physical environment and sanitation of child care facilities are regulated via MR 9502.
- There are approximately 8,000 child care facilities in Minnesota.
- In 2018 MDH and the MDE jointly issued technical guidance to reduce exposure to lead in local education agencies' drinking water, available at: Reducing Lead in Drinking Water: A Technical Guidance and Model Plan for Minnesota's Public Schools. The guidance is consistent with the 2018 EPA "3Ts for Reducing Lead in Drinking Water" guidance.

- A recent MDH report shows that the cost to eliminate lead from all drinking water was between $1.5 and $4.1 billion over a 20-year project period. The benefits of removing lead from drinking water were estimated to be $4.2 to $8.4 billion.

Priorities

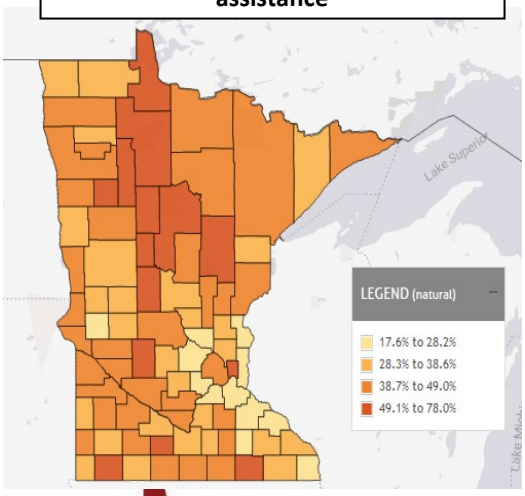
We will give priority to applicants from low-income areas (indicated by the number of children receiving free/reduced lunch and childhood poverty rate), areas with existing elevated lead exposure (indicated by MDH data displayed above), elementary and child care facilities that primarily care for children 6 and under, and areas with a high percentage of buildings built before 1986.

While private education agencies are not eligible for MLTSCCDW, private child care facilities are eligible. In addition, locations that are classified as public water supplies are not eligible. Sampling that occurred prior to the start of the MLTSCCDW is not eligible for reimbursement.

Low Income Areas

Low socioeconomic status is strongly correlated to higher exposure to lead. Higher-poverty local education agencies can be found by identifying the number of students receiving free/reduced lunch. If more than 50% of students receive lunch assistance, the local education agency is considered high-risk for a number of public health factors. The map on the right (from Children Receiving Free/Reduced Price Lunch in Minnesota) shows Minnesota counties with more than half of students receiving lunch assistance. A map from the same source shows children living in poverty have a nearly identical distribution of high health risk. Local education agencies in these counties will be targeted for recruitment into MLTSCCDW.

Percentage of children receiving lunch assistance

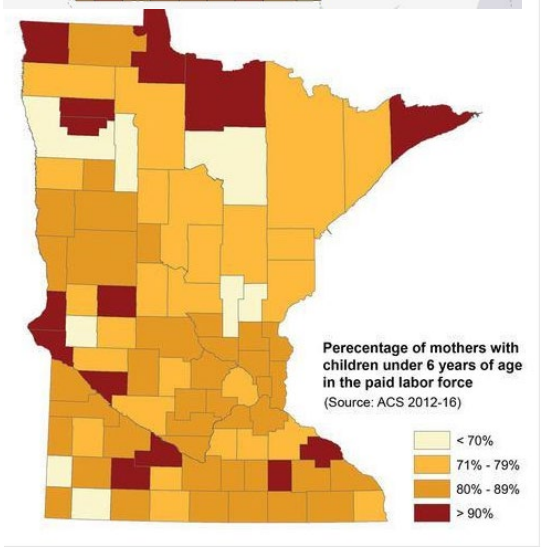


i. Older Facilities (built before 1988)

The American Community Survey indicates that almost half of Minnesota homes, which may serve as childcare facilities, were built before 1980 and therefore could be considered high-risk for lead exposure from both paint/dust and water. The age of a building will be gathered as part of recruitment and awarding of services, with older buildings getting higher priority. For local education agencies, the greatest source of lead is from premise plumbing in areas that receive minimal use. For child care programs served by a community public water supply, the most likely source of lead is a lead service line.

ii. Facilities That Care for Children Age 6 and Under

Of children under age 6 in Minnesota, 35% (145,595) are from low-income families. The darkest areas in the map on the right show where over 90% of mothers with children under 6 years old are in the paid workforce (from Minnesota Working Moms With Children Under 6). The next darkest color represents places with at least 80%. These areas likely have the highest rates of children in child care. Therefore, these counties will be targeted for recruitment into MLTSCCDW.



B. **Program Implementation and Activities**

MDH will use established state guidelines for sampling for lead in drinking water at local education agencies and child care facilities to implement this project. Efforts will be consistent with the EPA 3Ts approach. Specifically, we will (1) **Communicate**, throughout the implementation of the program, the sample results and important lead information to the parents, teachers, and larger community; (2) **Train** on the risks of lead in drinking water and sampling for lead, as well as develop key partnerships to support the program; (3) **Test,** using appropriate sampling protocols and a certified laboratory; and (4) **Take Action**, including the development of a plan for responding to sample results and addressing elevated lead, where necessary.

i. Minnesota Guidelines and the EPA 3Ts

In 2018 MDH and MDE released Reducing Lead in Drinking Water: A Technical Guidance and Model Plan for Minnesota's Public Schools. The guidance contains an overview of lead toxicity and hazards, an explanation of pertinent regulations and state/federal guidelines, a model plan for lead sampling, and lead hazard reduction options. The Minnesota guidance is equivalent to the EPA 3T approach, because they both:

- **Communicate** health information about the risks of lead in general and in drinking water specifically and present methods for ensuring that parents and the public are informed
- **Train** practitioners by presenting information on applicable regulations, ways to understand results, and links to a wide range of resources
- **Test** for lead by providing a model plan consistent with current best practices
- **Take Action** by giving lead hazard reduction options and ways to ensure that any proposed response is consistent with the degree of public health threat
- **Do not provide a specific response threshold** because there is no safe level of lead exposure. An appropriately scaled response consistent with local priorities and needs is needed. Smaller hazards need smaller responses, while larger hazards require more comprehensive actions.

Similar to the EPA 3Ts approach, the Minnesota guidance promotes evaluating the best approach for protecting against lead exposure in local education agencies and balancing a number of factors:

- Current research has not identified a safe level of exposure to lead
- Lead remains in many areas of the environment, making it difficult to eliminate all exposure
- The risks of developing irreparable damage from lead in water increase with higher concentrations of lead and longer exposure times
- Local education buildings across the state are very different in age, size, and use, which impacts the likelihood of lead exposure
- Local education agencies have the best understanding of their buildings and how they are used; they can work with parents, students, teachers, and administrators to come up with the best approach for their specific situation
- Child care facilities may have less experience with plumbing concerns and may require additional technical assistance and/or coordination with landlords

An effective response to lead in drinking water must consider all of the factors listed above. While MDH will be readily available for technical assistance and consultation, the local education district is in the best position to understand and implement an effective strategy for their specific situation.

ii. Communication

Effective and transparent communication involving active, informed partners is essential to any public health endeavor. To maintain communication between key agency partners, an interagency team will be created with representatives from MDH, MDE, and DHS. The team will meet as described in the timeline below and as often as needed as issues arise. A Toolkit: Reducing Lead in Drinking Water has been developed to provide guidance, key messages, and templates.

Local education agencies will be actively prioritized by the MDH Research Scientist 3 and recruited by MDE and child care programs will be prioritized and recruited by DHS. Communication with constituents will use established paths (newsletters, conferences, websites, mass emails). Staffing support is needed at MDE and DHS to ensure that high-risk areas and populations are targeted and participants understand program requirements. Funding is also dedicated to an outreach campaigns to ensure the highest-risk areas understand the public health threat and receive the necessary resources to complete sampling, understand sample results, and take appropriate actions.

The target audiences for the outreach campaign are: local education agencies, childcare facilities, the community of these facilities (e.g. parents, teachers, and staff), the larger communities in which the facilities are located, local community organizations (e.g. local health officials, environmental health specialists, doctors, and nurses, Lead Poisoning Prevention Programs, and civic and faith-based groups), and the drinking water community (e.g. utilities serving these facilities).

Data generated by sampling will be returned to the local education agency/child care facility within 30 days of analysis. Participating organizations must then make the information available on website or at their administrative offices. Parents will be notified of the availability of results and how to find them.

MDH will publish funding levels going to sub-awards within 60 days of award.

In addition, the Project Manager will provide routine updates at the Minnesota Collaborative Lead Education and Assessment Network (MCLEAN). MCLEAN provides a forum for a wide range of lead poisoning prevention partners to share updates, discuss legislative developments, and discuss ways to move collaborative work forward. Both lead poisoning prevention and healthy homes issues are covered.

iii. Training

Sustaining gains in reducing lead exposure from drinking water will require ongoing vigilance and a strong understanding of risk factors by building owners, maintenance staff, parents, and administrators. Training is an essential aspect of successfully implementing the proposed project, and therefore has received the critical resources described below. The most important sources of information will be the MDH guidance and the EPA 3Ts document (see i above).

Examples of sampling techniques are presented in both written and video format on the MDH website. Both will be extensively promoted in all program materials and events. In addition, various sample bottles are described in materials from the PHL and the EPA has background on lead in drinking water

In addition to multi-media materials, direct technical assistance will be provided by staff from MDH (all aspects of the project), MDE (targeting local education agencies), and DHS (targeting child care programs). If questions arise regarding general lead toxicity and overall hazard

reduction, staff from the MDH Lead and Healthy Homes program (CDC Childhood Lead Poisoning Prevention grantee) will be called in to provide answers.

Finally, training will be essential to properly interpreting sampling results so they can lead to appropriate hazard reduction steps. The concept of "no safe level" can be difficult to translate into effective public health actions.

iv. Testing

Participating sites will be prioritized based on the factors listed in Section A above. Local education facilities will send in their state-required sampling plans, which should contain specific details on how many locations need to be sampled. For child care facilities, a form will be developed to gather necessary information to determine eligibility and priority. Information will be submitted to the Project Manager, who will forward eligible sites and specific sampling information to the MDH PHL.

All logistics related to sampling will be coordinated by the MDH PHL, which is certified for EPA method 200.8 and EPA 6020 to analyze lead in drinking water. They have established facilities and extensive experience in preparing and distributing sampling kits across the state. They also have experience providing return shipping materials to facilitate return of samples. Sample kits will contain instructions, bottles for sampling, chain of custody forms, shipping materials.

All samples will consist of a first-draw and a follow-up flush sample collected in standard 250 ml bottles consistent with MN and 3Ts guidance. Bottles will be labeled with sequential numbers that will correlate to a numbered list containing a description of the sample location. The list will help connect individual sample results with specific locations at the facility. For planning purposes, it is assumed that each local education facility will require 35 samples and each child care facility will require 15. As every school building and child care facility is unique some may require more or less in order to sample at all taps used for drinking water or food preparation.

For the first 6 months of the project, sample kits will be sent out on a first-come/first-served basis. After that time, all eligible applicants will be included until quarterly goals set for sampling (see Section C below) are reached. After that, only locations that meet the priority conditions (see Section A above) will receive sample kits for the remainder of the quarter. Non-priority locations will be included in the next quarter.

Once all samples are collected and all paperwork is completed, samples will be returned to the MDH PHL using shipping labels provided in the initial sample kit. Because no thermal preservation is required and the hold time is 14 days, there should be no issues with cancelations due to shipping issues. Discrepancies with chain of custody or other quality control measures, as presented in the Quality Assurance Project Plan, will be managed through the PHL. If a result above 20 ug/L is reported, the information will be forwarded to the facility immediately.

v. Taking Action

While the third of the three "T"s is *taking action*, the current program does not allow funds to be used to address on-site hazard reduction measures. However, there are a number of steps that can be taken at relatively low cost to reduce exposure. There also are established resources to help with maintenance and health and safety issues in buildings. The resources described below are all available to local education agencies and child care facilities, but will not be charged to the program.

MDE administers the Long-Term Facilities Maintenance Revenue program under Minnesota Statutes, section 123B.595. This program may be used to reimburse costs associated with lead sampling and remediation. Funding does not cover staff time used to perform daily flushing or water use utility cost associated with flushing procedures. Memorandums from MDE, program guidance documents, spreadsheets and forms used to obtain approval to receive revenue are available at: Long Term Facilities Maintenance. Funds from the proposed project will be used to supplant MDE resources.

Households that serve as childcares may qualify for one of the following loans (which must be paid back), grants (which do not have to be paid back), or services to help address water treatment:

- AgBMP Loan Program provides low interest loans to farmers, rural landowners, and agriculture supply businesses. Contact your local Soil and Water Conservation District or see Agriculture Best Management Practices (BMP) Loan Program.
- Single Family Housing Repair Loans and Grants provide low interest loans for homeowners with income below 50 percent of the area's median income and grants for people over the age of 62 years. See Single Family Housing Repair Loans and Grants.
- Fix Up Program provides fixed interest rate loans to homeowners. Go to Minnesota Housing and click on "Homebuyers & Homeowners—Improve Your Home".
- The metropolitan Twin Cities area has a long history of implementing lead hazard control grants from HUD that may be used for in-home child care programs
- MDH supports a lead education and hazard reduction effort through "SWAB" grants. "Swab team services" are defined as activities that provide protection from lead hazards primarily through the use of interim controls.
- Technical assistance is routinely provided by DWP on a wide range of drinking water protection. Staff will work with locations having elevated results and the local public water system to identify options and implement hazard reduction efforts.

Resources that have previously been made available for testing for lead contamination in drinking water in local education agencies will not be replaced by funds provided from this SDWA 1464(d) grant. Grant funding will be used to supplement and enhance existing resources.

C. **Roles and Responsibilities**

Child care programs and local education agencies are defined as:

(A) The term 'child care program' has the meaning given the term 'early childhood education program' in section 103(8) of the Higher Education Act of 1965 (20 U.S.C. 1003(8)).

(B) The term 'local education agency' means:

(i) a local education agency (as defined in section 8101 of Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801));

(ii) a tribal education agency (as defined in section 3 of the National Environmental Education Act (20 U.S.C. 5502)); and

(iii) a person that owns or operates a child care program.

MDH will have responsibility for managing all aspects of the program, coordinating with partners, and ensuring deliverables are completed on time and the budget is tracked. Other roles and responsibilities are listed in the following table:

Overall program contact	Anna Schliep, MDH Lead in Drinking Water Coordinator MDH Drinking Water Protection 625 Robert St. N St. Paul, MN 55101 651-201-4667 anna.schliep@state.mn.us
Interagency coordination team	Staff from MDH, MDE, and DHS; logistics and scheduling coordinated by MDH Project Manager
Website and social media	Diana Ditsch MDH Environmental Health Division 651-201-4570 Diana.ditsch@state.mn.us
Contact for local education agencies	Sarah Miller MDE Budget and Facilities 651-582-8370 Sarah.c.miller@state.mn.us
Contact for child care facilities	Donna Gainor DHS Child Care Licensing Unit 651.431.6529 donna.gainor@state.mn.us
Lead health risks	Vacant MDH Lead and Healthy Homes
Sampling logistics and analytical results	Cori Dahle MDH Public Health Lab 651-201-5214 Cori.dahle@state.mn.us
Data analysis and interpretation	Deanna Scher, PhD MDH Environmental Surveillance and Assessment 651-201-4922 Deanna.scher@state.mn.us

Both MDE and DHS will play a critical role early in the process (prioritizing, recruiting, facilitating applications) and late in the process (communicating results, identifying hazard reduction resources). For local education agencies, MDE will provide a credible, familiar voice to encourage participation and point out the benefits of participation in MLTSCCDW. Similarly, DHS will provide a credible, familiar voice to encourage participation and point out the benefits of participation for child care facilities. The active participation of both agencies will be critical to maximizing participation.

D. Timeline and Milestones

Minnesota Lead Testing in Drinking Water at Schools and Child Care Centers will serve as many facilities as budget and time allow. Project goals are to reach 300 local education facilities and 60 child care facilities or a total of up to 14,086 samples using FFY19 and FFY20 funds. Milestones will be tracked on a quarterly basis and adjustments made as needed to meet targets. The number of facilities will depend on how many samples are needed per facility this number can vary widely. Testing may include first draw and flushed samples and any additional samples needed to evaluate an elevated lead level (profile)

or testing after remediation. No funds will be used to pay for remediation activities. Any eligible facilities that apply will receive service, with those having high risk factors (Section 1) receiving priority.

FFY20 – Quarter 1 (Oct – Dec 2019): Meet with stateholders to discuss coordination for recruiting applicants. Partners included Minnesota Department of Education (MDE), Minnesota Department of Health (MDH) and Minnesota Department of Human Services (DHS).

FFY20 – Quarter 2 (Jan – Mar 2020): Working with MDH human resources to hire staff to manage this project.

FFY20 – Quarter 3 (April –Jun 2020): Grant coordinator hired in March. Work on developing Quality Assurance Project Plan and supporting documents. Apply for renewal funding. Start process of developing data management system, application and communication materials. Schools in Minnesota were closed in March due to Covid19 no testing was completed during this time.

FFY20 – Quarter 4 (July- Sept. 2020): Convene interagency team to plan project launch; receive funding from federal award agency; complete Memorandum of Agreement between agencies to document roles and responsibilities; create recruitment materials; present information at School Nurse Organization of Minnesota annual meeting; plan topics for training and begin compiling curriculum. Due to planning and administrative tasks, only 2 child care facilities and 10 local education facilities are expected to be completed in the quarter. We expect to also be onboarding additional schools and child care facilities into our data management system (uploading sampling plans and materials inventories). Due to ongoing threats of Covid19 sampling may be limited as many schools are using distance learning methods.

FFY21 – Quarter 1 (Oct. – Dec. 2020): Distribute recruitment materials; schedule training events in high-priority counties; provide technical assistance to resolve sampling issues; implement site selection procedures and distribution of sample materials. Goal of completing 3 child care facilities and 15 schools in the quarter.

FFY21– Quarter 2 (Jan– March 2021): Convene interagency team to review project status, discuss barriers, and plan future steps; work with local education agencies to coordinate efforts as the school year comes to a close; continue distribution of recruitment materials and training opportunities; communicate results from initial participants to parents and other stakeholders; for locations with elevated results, provide help in assessing hazard reduction options; Gradually increase quarterly goal by completing 5 child care facilities and 25 schools.

FFY21 – Quarter 3 (April– June 2021): Continue requirement, training, testing and reporting. The quarterly goal is at least 10 child care facilities and 50 schools; understanding that no testing should occur when schools are on extended breaks.

FFY21 – Quarter 4 (July – Sept 2021): Convene interagency team to review project status, discuss barriers, and plan future steps; continue distribution of recruitment materials and training opportunities; communicate results to parents and other stakeholders; for locations with elevated results, provide help in assessing hazard reduction options. Quarterly goal of 10 child care facilities and 50 schools.

FFY21 – Quarter 1 (Oct. – Dec. 2021): Continue recruitment, training, testing, and reporting. Quarterly goals of 10 child care facilities and 50 schools.

E. **FFY21 – Quarter 2 (Jan. – Mar. 2022):** Convene interagency team to review project status, discuss barriers, and plan future steps; present initial draft of final report and project conclusions. Quarterly goal of 10 child care facilities and 50 schools.

FFY21 – Quarter 4 (April – June 2022): If previous quarterly goals are met, no child care facilities or schools are needed to meet overall project goals; as many as possible will be completed, however, assuming funds are available and need identified continued testing could occur. Complete final report along with grant close-out requirements.

E. WIIN Programmatic Priorities and The EPA's Strategic Plan Linkage

The activities described in this work plan support the WIIN Programmatic Priorities and EPA's FY 2018-22 Strategic Plan, Goal 1, "Core Mission: Deliver real results to provide Americans with clean air, land, and water, and ensure chemical safety," Objective 1.2, "Provide for Clean and Safe Drinking Water: Ensure waters are clean through improved water infrastructure and, in partnership with states and tribes, sustainably manage programs to support drinking water, aquatic ecosystems, and recreational, economic, and subsistence activities."

F. Outputs and Outcomes

Outputs and outcomes expected to be achieved under the agreement are described below. Outputs for this project include:

1) Use of the MDH guidance and EPA's 3Ts for Reducing Lead in Drinking Water guidance to implement the state program;
2) Development of a state lead in drinking water sampling and management strategy for local education agencies and childcare facilities. The strategy will support a robust training, monitoring, and building maintenance plan that protects children from lead exposure now and in the future;
3) Lead in drinking water sampling that targets vulnerable populations: local education agencies and child care programs in low-income communities; elementary and child care programs that primarily care for children 6 years and under; and older facilities that are more likely to contain lead plumbing;
4) Providing results of lead in drinking water sampling to parents, teachers, and the school community; and
5) Establishment of routine lead poisoning prevention practices at schools and child care facilities, such as those outlined in the 3Ts guidance.

Outcomes for this projects include:

1) Local education agencies or child care programs and mitigating lead exposure by using MN guidance and the 3Ts toolkit to determine the best actions to take for remediation;
2) Reducing children's exposure to lead in drinking water;
3) Improving staff and community knowledge of lead in drinking water; and
4) Water quality improvement and health risk avoidance by reducing lead exposure.

Other outcomes include: (1) Fostering sustainable partnerships at the state and local level to allow for a more efficient use of resources and the exchange of information among experts in various areas of local education agencies, child care, utility, and health sectors; and (2) The enhancement of community, parent, and teacher trust that a safe environment is being maintained in their facility.